Rev. 4/9/06

Fermilab Accelerator Advisory Committee
May 10-12, 2006

Charge (Draft Rev. 3)

The Fermilab Accelerator Advisory Committee is asked to focus in its May 2006 meeting on efforts aimed at developing the Fermilab neutrino programs beyond the 2009 end of Run II, and the opportunities for aligning these efforts with the ILC program. Three primary topics will be discussed:

1. Proton Improvement Plan and its immediate follow-ons

The Proton Improvement Plan has been established, and work has started, with the goal of achieving up to 400 kW of beam power delivered to the NuMI target simultaneous with antiproton production for Run II. Following the completion of Run II certain assets will become available for the utilization in the neutrino program, and concepts are being developed for extending performance of the Main Injector complex to approximately 1 MW.

The committee is asked to review the plan for evolution of the neutrino complex from the present time through and beyond the end of Collider Run II and offer comments and recommendations relative to strategy, technical feasibility, and planning and execution.

2. High Intensity Neutrino Source R&D

A possibility that has been discussed extensively for the longer term future neutrino program is the development of a >2 MW neutrino source based on a superconducting H^- linac. Fermilab's approach has been modified over the last year to align this effort more closely with the laboratory's ILC strategy.

The committee is asked to review and offer comments and recommendations relative to the current plan, strategy, and development status of R&D in support of a High Intensity Neutrino Source.

3. High Intensity Neutrino Source Synergies

Identification of possible synergies, or multiple use applications, of technologies developed within the HINS R&D program could provide a cost effective means of advancing multiple options for Fermilab and/or the Office of Science. The most discussed synergy involves the $\beta=1$

superconducting linac that serves as the basis of both the ILC and HINS. However, other possibilities, while not developed in detail, may exist.

We would like to engage the committee in discussion on possible strategies to maximize mutual benefit to the HINS and other programs. This discussion will include:

- Possible synergies with the ILC
- Possible utilization of the HINS in support of a muon storage ring
- Possible connections with other Office of Science programs

We are interested in any reaction or advice the committee would provide in these areas.

As usual the committee is invited to issue comments or suggestions on any aspect of the programs discussed beyond those specifically included in this charge. It is requested that a concise report responsive to this charge be forwarded to the Fermilab Director by June 15, 2005. Thank you.